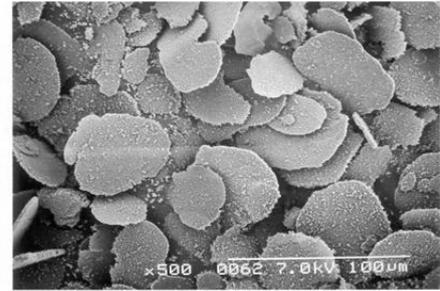


Aluminium pigment for powder coating



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Aluminium pigment for powder coating: PCF1440

【 1. Introduction 】

In recent years, in line with the global trend of regulating Volatile Organic Compounds (VOC), a switch has been made from solvent-based coatings to water-based coatings or powder coatings as an environmentally friendly coating.

It is expected that powder coatings will become the ultimate environmentally friendly coating that contains no solvent. In the area of powder coatings, there are also needs for metallic materials. This report introduces aluminium pigments for powder coatings developed to cater to such needs.

【 2. PCF Series 】

In most cases, a powder coating is used as a monocoat (single-layer coat), therefore, high chemical resistance is required for aluminium pigments. In addition, because this coating is generally applied with an electrostatic powder coating process, there is a problem in that standard aluminium pigments give rise to leakage currents, thus a voltage cannot be applied. The PCF Series are aluminium pigments that have the excellent chemical resistance required for powder coatings and provide the insulation needed in the electrostatic powder coating process by coating resins on the base materials of aluminium flakes.

In the lineup of the PCF Series, as shown in Table 1, standard type and high-gloss type are available. Both products are in the form of dry powders (dry aluminium flakes) containing no solvent. Grades with the suffix "A" in the name, as in "PCF7130A," have a higher resin coat content for further improved chemical resistance.

Table 1 A list of PCF Series

Type	Grade	Average particle diameter (μm)
Standard	PCF7130	20
	PCF7130A	21
	PCF7160	15
	PCF7160A	16
High-gloss	PCF7410A	29
	PCF7620	20
	PCF7620A	21
	PCF7670A	17

【 3. Bonding technology (bonded aluminium) 】

For metallic powder coatings, a dry blend with aluminium pigments and powder coating resins simply blended for application has been the mainstream. Recently, however, bonded aluminium is mainly adopted in view of recovering and reusing the coating. Bonded aluminium is a powder (clear resin) of powder coating resins on which aluminium pigments are bonded (bonding). A schematic diagram and an SEM image are shown in Figs. 1 and 2, respectively. With a dry blend, the composition of a non-adhered coating varies widely in contrast to the prepared coating due to differences in electrification between resins and aluminium pigments. In contrast, with bonded aluminium, there is little change in the

composition of non-adhered coating, which enables its recovery and reuse.

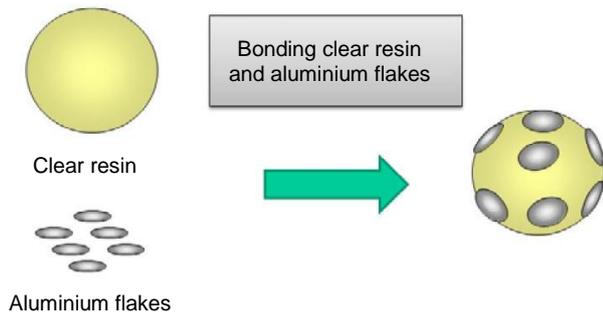


Fig. 1 A schematic diagram of bonded aluminium

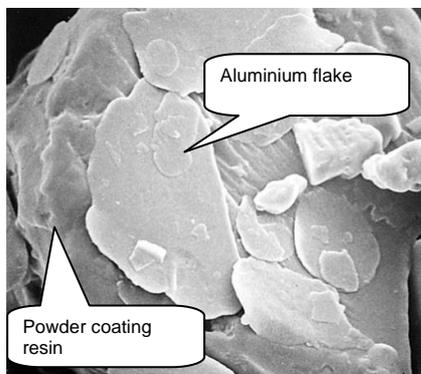


Fig. 2 SEM image of bonded aluminium

【 4. Summary 】

Although the proportion of powder coatings to all coatings is about 60% in China and North America, it is still 3% at most in Japan. As more and more environmentally friendly coatings will be required in Japan as well, demand for powder coatings is expected to grow, and an expansion of the variety of characteristics required is anticipated for aluminium pigments used in powder coatings.

We will continue to improve our products to satisfy a wide range of customer's requirements.